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May 17, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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BY HAND DELIVERY

Magalie Roman Salas, Secretary
Federal Communications Commission
The Portals - TW-A325
445 Twelfth Street, S.W.
Washington, DC 20554

Re: *Ex Parte* Presentation in CC Docket Nos. 99-68

Dear Ms. Salas:

In its Reply Comments in the above-referenced proceeding, GTE Service Corporation ("GTE") attached its Motion to Strike the reply comments and attached survey of Hyperion Telecommunications, Inc. ("Hyperion") filed in the proceeding regarding GTE's ADSL tariff.[1] GTE, of course, fails to mention that Hyperion filed an Opposition to the GTE Motion to Strike, and that the Motion was never considered before the FCC's Order was released. Accordingly, Hyperion hereby submits a copy of its Opposition to GTE Motion to Strike, as well as the Reply Comments to which the survey was attached, for inclusion in the record pursuant to Section 1.1206(a) of the Commission's Rules, 47 C.F.R. § 1.1206(a) (1997).

Should any further information be required with respect to this *ex parte* notice, please do not hesitate to contact me. I would also appreciate it if you would date-stamp the enclosed extra copy of this filing and return it with the messenger to acknowledge receipt by the Commission.

Sincerely,

Richard M. Rindler

cc: Janet Livengood
Thomas Power
Linda Kinney
Kevin Martin
Kyle Dixon
Sarah Whitesell

No. of Copies rec'd 0
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[1] *GTE Telephone Operating Companies, GTOC FCC Tariff No. 1, GTOC Transmittal No. 1148,* CC Docket No. 98-79.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
GTE Telephone Operating Companies	)	
GTOC Tariff FCC No. 1	)	CC Docket No. 98-79
GTOC Trans. No. 1148	)	

OPPOSITION TO GTE MOTION TO STRIKE

Hyperion Telecommunications, Inc. ("Hyperion"), by its undersigned counsel and pursuant to Rule 1.45 of the Commission's Rules, 47 C.F.R. §1.45, hereby opposes the Motion to Strike filed by GTE Service Corporation ("GTE") in this proceeding. The Commission should deny the GTE Motion and accept Hyperion's Reply Comments and the Hyperion Survey because the basis for the GTE Motion, Section 1.106 of the Commission's Rules, is not applicable to this proceeding. Even if it were applicable, there is good cause for the Commission to consider the information contained in the Hyperion Reply Comments and the Hyperion Survey because they underscore a key point raised in the MCI WorldCom Petition for Reconsideration and demonstrate that the rationale underlying the *GTE ADSL Order* is suspect.

I. REGARDLESS OF WHICH RULES APPLY, THE HYPERION SURVEY SHOULD BE CONSIDERED BY THE COMMISSION

GTE places great reliance on strict adherence to Section 1.106(c) of the Commission's Rules to argue that the Hyperion Survey should be stricken from the record in this case. This reliance is misplaced for at least two reasons. First, as RCN Telecom Services, Inc., noted in its earlier Opposition to the Motion to Strike filed by Ameritech in this case, Section 1.106 does not apply to the comments and reply comments in this proceeding because an alternate procedural mechanism

was established by the Public Notice of December 4, 1998.[1] That Notice provided for alternative procedures for the Petitions for Reconsideration by, among other things, extending the opportunity to file reply comments to "interested parties," rather than just the Petitioners as directed by Section 1.106. *See* 47 C.F.R. §1.106(h). The Public Notice also revised the standard procedure for Petitions for Reconsideration by seeking "comments," rather than limiting the record to "oppositions" as provided by Section 1.106. Evidentiary support for comments is quite typical in proceedings before the Commission. Hyperion seriously questions whether GTE would be willing to forego production of evidentiary support for its comments in other proceedings unless the Commission were specifically to ask for it.

Second, even if it were to apply, Section 1.106 in fact supports the acceptance of Hyperion's Survey in this proceeding. The Commission should accept the Hyperion Survey because "consideration of the facts relied on is required in the public interest." In the *GTE ADSL Order*, the Commission recognized that even under its "end to end" analysis, some traffic destined for Internet locations would begin and end within the same state. Therefore, GTE's ADSL traffic would necessarily carry both intrastate and interstate traffic. Consequently, the Commission based the *GTE ADSL Order* upon application of a rule for determining federal jurisdiction for mixed-used special access facilities. That rule depends entirely upon a finding that interstate use of mixed-used facilities must be more than a *de minimis* amount. Interstate traffic is deemed *de minimis* when it amounts

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[1]Pleading Cycle Established for Petition of MCI/WorldCom and National Association of Regulatory Utility Commissioners (NARUC) for Reconsideration of GTE DSL Order, Public Notice, CC Docket 98-79, DA 98-2502 (rel. Dec. 4, 1998).

to ten percent or less of the total traffic on a special access line.[2] The Commission concluded that "GTE's ADSL service is a special access service, thus warranting federal regulation under the 'ten percent' rule."[3] MCI WorldCom immediately recognized that there was no support in the record for this factual conclusion, and raised that point in its Petition for Reconsideration. As MCI WorldCom stated,

> MCI WorldCom respectfully requests that the Commission reconsider the ADSL Tariff Order's blanket conclusion that more then ten percent of Internet traffic is destined for websites in other states or other countries. Even if more than ten percent of some end users' Internet traffic is destined for websites in other states or countries, the record in this proceeding does not support a conclusion that this is the case for all end users. *It is entirely possible that less than ten percent of certain end users' Internet traffic may be destined for websites in other states or countries.*[4]

Hyperion's Survey merely follows up on that statement in the MCI WorldCom Petition for Reconsideration. Not only is there no factual basis in the record for the Commission's conclusion, but Hyperion's Survey tends to show that the conclusion itself is flawed. For this reason, the Hyperion Survey should be considered as highly probative of MCI WorldCom's statement that the facts in the record do not support the conclusions reached by the Commission. Because it raises substantial questions regarding the validity of the *GTE ADSL Order*, the Commission should recognize that consideration of the Hyperion Survey "is required in the public interest."

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[2] *GTE ADSL Order* at ¶ 23.

[3] *Id.* at ¶ 25.

[4] MCI WorldCom Petition for Reconsideration, Nov. 30, 1998, at 9-10 (emphasis added).

Finally, this proceeding has far-reaching regulatory and policy implications concerning the Commission's jurisdiction over local service used to access the Internet. The Commission should accept and fully consider all comments in order to base its decision on a complete record. Accordingly, consideration of any and all comments filed thus far, and any evidentiary support included with those comments, is required in the public interest.

II. ALL OTHER ARGUMENTS MADE BY GTE GO TO THE WEIGHT GIVEN TO THE SURVEY

Given that the Hyperion Survey should be accepted and considered by the Commission as it decides the NARUC and MCI WorldCom Petitions for Reconsideration, the remainder of GTE's unrestrained attack on the Hyperion Survey merely goes to the weight that the Commission should give to the Hyperion Survey. Hyperion anticipated the sort of attack waged here by GTE.[5] GTE, as well as the RBOCs, have already identified the *GTE ADSL Order* as a potential source for their deliverance from contractual obligations to pay reciprocal compensation to CLECs. If the validity of the *GTE ADSL Order* is made suspect, their entire defense to the 33 state commission, federal court, and state court decisions that require them to pay reciprocal compensation would instantly vanish. Yet lost in the *sturm und drang* of the GTE Motion is this simple truth: there is no support in the record to justify the Commission's conclusion that more than ten percent of the traffic carried over GTE's ADSL lines is interstate traffic. The Hyperion Survey merely underscores the

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[5]Hyperion even anticipated the attack on the methodology of the survey. *See* Hyperion Reply Comments at n. 20 ("Although Hyperion anticipates an argument that this methodology is not applicable to packet-switched traffic, it is the methodology that the Commission implicitly relies upon in the *GTE ADSL Order*, and, in the absence of another methodology for packet-switched traffic, it is the only methodology available under Commission rules for special access lines.") GTE proves Hyperion's point by failing to identify another methodology in the Commission's rules that Hyperion should have used.

importance of this omission by showing that, under applicable Commission rules, the amount of interstate traffic over Internet access lines is significantly less than ten percent.

For the foregoing reasons, GTE's Motion to Strike should be denied, the Hyperion Reply Comments and Hyperion Survey should be considered by the Commission, and the Petitions for Reconsideration filed by MCI WorldCom and NARUC should be granted.

Respectfully submitted,

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Dated: February 24, 1999

Counsel for Hyperion Telecommunications, Inc.

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FILE STAMP AND RETURN

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
GTE Telephone Operating Companies	)	
GTOC Tariff FCC No. 1	)	CC Docket No. 98-79
GTOC Trans. No. 1148	)	

REPLY COMMENTS OF HYPERION TELECOMMUNICATIONS, INC. ON PETITIONS FOR RECONSIDERATION

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Dated: January 19, 1999

SUMMARY

As Hyperion stated in its initial comments, the Commission had no factual basis in the record to support its conclusion that interstate traffic represented more than 10 percent of the total traffic carried over the ADSL special access lines provided by GTE. The comments of several of the incumbent local exchange carriers ("ILECs") that oppose the MCI WorldCom Petition and the NARUC Petition make this point all too clear. While none of them provides any reliable support for a finding of 10 percent interstate traffic, Hyperion has, as stated in its initial comments, commissioned a study to investigate the extent of traffic between an end user and an Internet service provider ("ISP") that is used for interstate communications. The study shows that (i) interstate transmissions related to Web browsing constitute 9.69 percent of the total traffic over the local loop, including both dedicated access and dial-up access, (ii) interstate transmissions related to electronic mail constitute 4.50 percent of the total traffic, and (iii) the weighted average for both types of Internet traffic shows that 6.57 percent of the total traffic between an end user and an ISP can be attributed to interstate communications. Therefore, the Commission erred in its conclusion in the *GTE ADSL Order* that interstate traffic represents 10 percent of the total traffic carried over the special access facilities using GTE's ADSL service. Accordingly, the Commission cannot claim jurisdiction over the service using the "10 percent rule," and, therefore, must reconsider the *GTE ADSL Order.*

TABLE OF CONTENTS

Before the
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In the Matter of	)	
	)	
GTE Telephone Operating Companies	)	
GTOC Tariff FCC No. 1	)	CC Docket No. 98-79
GTOC Trans. No. 1148	)	

REPLY COMMENTS OF HYPERION TELECOMMUNICATIONS, INC. ON PETITIONS FOR RECONSIDERATION

Hyperion Telecommunications, Inc. ("Hyperion"), by its undersigned counsel and pursuant to the Public Notice of December 4, 1998,[1] submits these reply comments on the Petitions for Reconsideration filed by MCI WorldCom, Inc. ("MCI WorldCom Petition") and the National Association of Regulatory Utility Commissioners ("NARUC Petition") of the Commission's Order regarding GTE's provision of ADSL service.[2] As Hyperion stated in its initial comments, the Commission had no factual basis in the record to support its conclusion that interstate traffic represented more than 10 percent of the total traffic carried over the ADSL special access lines provided by GTE.[3] The comments of several of the incumbent local exchange carriers ("ILECs")

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[1]Pleading Cycle Established for Petition of MCI/WorldCom and National Association of Regulatory Utility Commissioners (NARUC) for Reconsideration of GTE DSL Order, Public Notice, CC Docket 98-79, DA 98-2502 (rel. Dec. 4, 1998).

[2]*In the Matter of GTE Telephone Operating Cos., GTOC Tariff No. 1, GTOC Transmittal No. 1148*, CC Docket No. 98-79, Memorandum Opinion and Order (rel. Oct. 30, 1998) ("*GTE ADSL Order*").

[3]As stated in its initial comments, Hyperion disagrees with the Commission's underlying conclusion in the *GTE ADSL Order* that Internet communications represent indivisible telecommunications from the end user to the server from which stored information may be obtained by the end user. Instead, Hyperion asserts that telecommunications originating at the end user

that oppose the MCI WorldCom Petition and the NARUC Petition make this point all too clear. While none of them provides any reliable support for a finding of 10 percent interstate traffic, Hyperion has, as stated in its initial comments, commissioned a study to investigate the extent of traffic between an end user and an Internet service provider ("ISP") that is used for interstate communications. The study shows that (i) interstate transmissions related to Web browsing constitute 9.69 percent of the total traffic over the local loop, including both dedicated access and dial-up access, (ii) interstate transmissions related to electronic mail constitute 4.50 percent of the total traffic, and (iii) the weighted average for both types of Internet traffic shows that 6.57 percent of the total traffic between an end user and an ISP can be attributed to interstate communications. Therefore, the Commission erred in its conclusion in the *GTE ADSL Order* that interstate traffic represents 10 percent of the total traffic carried over the special access facilities using GTE's ADSL service. Accordingly, the Commission cannot claim jurisdiction over the service using the "10 percent rule," and, therefore, must reconsider the *GTE ADSL Order.*

I. THE ILEC COMMENTS HIGHLIGHT THE FACT THAT THERE IS NO SUPPORT FOR A FINDING OF TEN PERCENT INTERSTATE TRAFFIC

The Commission had no support in the record for a finding that 10 percent of the total traffic over the lines using GTE's ADSL service was bound for interstate destinations. MCI WorldCom raised this point in its Petition for Reconsideration. The ILECs that filed comments opposing the MCI WorldCom Petition had every opportunity to rebut MCI WorldCom's claim by referring to

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terminates at the ISP receiving those telecommunications. At that point, the information service provided by the ISP begins. Viewed together, the telecommunications from the end user to the ISP, and the information service provided by the ISP, may constitute "interstate communication by wire" to bring the entire transmission within the jurisdiction of the Commission, but that does not change the fact that the telecommunications service terminates at the ISP.

evidence in the record that substantiated the Commission's conclusion. None did so.[4] In fact, the comments on this topic that were filed only highlight the fact that there is no support in the record, at best only conjecture. US WEST in its comments simply dismisses MCI WorldCom's claim as "pure speculation."[5] In support of this accusation of "pure speculation," US WEST asserts, "[t]here is no question that, overall, the interstate and foreign components of Internet traffic exceed the Commission's ten percent de minimis threshold – probably by a wide margin."[6] Not only is US WEST criticizing "speculation" with speculation of its own, but, in fact, there is a substantial question whether the interstate and foreign components of Internet traffic *over GTE's loops using ADSL service* exceed the ten percent threshold. Hyperion's Study shows that they do not.

GTE rebuts the MCI WorldCom claim by saying "all evidence suggests, and common sense supports, the conclusion that vastly more than ten percent of Internet traffic is interstate."[7] Again, conjecture, not fact, is used to support the Commission's conclusion about traffic over the GTE loops. Rather than relying solely on common sense or suggestion, Hyperion's Study uses empirical data to calculate a percentage of interstate traffic that is well below the Commission's threshold.

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[4]The ILECs do refer to statements made by GTE in its Direct Case and Rebuttal. GTE Comments at 8, US WEST Comments at 9. Those statements, however, are purely conjectural as well, and do not provide support for the conclusion reached by the Commission. For example, to GTE the "overwhelming weight of authority" that the total traffic over its ADSL lines contains more than 10 percent interstate traffic is that the Internet is "global," "international," and "links people . . . around the world." GTE Direct Case at 15-16. The same, of course, could be said of the public switched telephone network, but that does not make all special access lines connected to the PSTN interstate.

[5]US WEST Comments at 8.

[6]*Id.* at 9.

[7]GTE Comments at 8.

Finally, Pacific Bell responds to MCI WorldCom's claim that there is no support in the record for the Commission's conclusion by saying "it is hard to imagine Internet access failing to meet the minimum threshold for it being treated as an interstate line."[8] Pacific Bell even throws down the gauntlet, challenging MCI WorldCom to make a showing that GTE's ADSL service should be tariffed at the state level.[9] Hyperion's Study makes that case, and Pacific Bell need "imagine" no longer: Hyperion's Study shows that the amount of interstate traffic over access lines to ISPs does not pass the threshold.[10] By resort to conjecture, surmise, and estimation, when they had the opportunity to identify support in the record, GTE, Pacific Bell, and US WEST illustrate the weakness of the Commission's conclusion that the total traffic over GTE's ADSL lines contains more than a *de minimis* amount of interstate traffic to be tariffed at the federal level.

II. THE HYPERION STUDY DEMONSTRATES THAT THE *DE MINIMIS* THRESHOLD IS NOT MET

The study of Internet usage was performed at the request of Hyperion by Dr. James G. Williams and Professor Kenneth Sochats of the Department of Information Science and Telecommunications of the University of Pittsburgh. The report of the study is attached hereto as

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[8]Pacific Bell Comments at n.11.

[9]Pacific Bell Comments at 7.

[10]Pacific Bell cites two examples of the "predominantly interstate use of access to the Internet." Pacific Bell Comments at 4. The first, comments of Park Region Telephone Company, has nothing to do with the inquiry here. The percentage of inquiries to a web site is not relevant to the ratio of interstate traffic to total traffic on the lines between an end user and an ISP that may use ADSL service. Pacific Bell also refers to "SBC's analysis" to support a finding that Internet access traffic is interstate. Of course, SBC is Pacific Bell's parent company, so it could scarcely be considered an independent source of information. Moreover, there is no indication that "SBC's analysis" was conducted consistent with Part 36 of the Commission's rules. Hyperion's Study, however, was. In short, Pacific Bell's examples are irrelevant, misleading, and unreliable.

Exhibit A. The study shows that less than 10 percent of the total traffic over lines between end users and ISPs is directed to interstate or foreign locations.

A. The Sample

The study used data collected from a sample of 114 Internet users, drawn largely from the population of graduate students in the Department of Information Science and Telecommunications of the University of Pittsburgh, and other participants that those graduate students recruited. These users were considered frequent and knowledgeable users of Internet services. In addition, many of the users were from foreign countries. These users frequently visit foreign websites, utilize graphic images extensively (which involve greater transmission times than text files), make extensive use of electronic mail with attachments (thereby extending the transmission time), and communicate frequently by electronic mail with friends and family outside the United States. Therefore, the sample selected presents a worst-case scenario for the percentage of interstate (or international) usage. A sample selected from the general population could be expected to produce results for interstate traffic below those obtained by the study sample.

B. The Data Collected

The study participants recorded information related to their Internet usage on forms designed to collect data regarding, among other things, log-in time, log-out time, the number of mail messages received and sent, the number of web sites visited, and the geographic locations of the web sites visited. The transmission time for the information obtained by the user from interstate locations was determined by using the "PING" utility within the transfer control protocol/Internet protocol ("TCP/IP"). The PING utility sends a signal to a host site to determine whether it is connected to the network, and it has the ability to record the transmission time between the two locations. The

data collected was biased in favor of a finding that the particular transmission was interstate: for example, when a single web site could have both intrastate and interstate geographic locations,[11] the interstate location was used for determining transmission time. Data for both dial-up and direct access to the ISP were collected in the Study.

C. The Study Methodology

The study was commissioned to assess the amount of interstate traffic in a typical Internet session in relation to the amount of total traffic in the session. To determine the percentage of interstate traffic on the line, the total transmission time related to interstate (or international) destinations was divided by the total time of the Internet session. The legal foundation for this methodology is discussed below. Because electronic mail and web browsing represent the great majority of all Internet usage, only those services were considered in this study. Separate consideration of other services, such as file transfer, Internet relay chat, or database processing, would not change the results of the study significantly because the transmission services involved in those applications are similar to those used in electronic mail and Web browsing. When file transfer or other services occurred in the study, they were include as either electronic mail or Web browsing.

D. The Results

The results of the study show that the 10 percent threshold for Commission jurisdiction over mixed-use special access lines is not satisfied. The results of the study indicate that the ratio of

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[11]Through the use of caching or mirroring, a website identified by a single universal resource locator ("URL") could be stored on servers located not only within the state but also outside the state. The study does, however, take into consideration that a significant amount of Web browsing occurs with Web pages cached on the user's computer or at the ISP cache server.

interstate holding time to total holding time for electronic mail is 4.5 percent. The results of the study also indicate that the ratio of interstate holding time to total holding time for Web browsing is 9.69 percent. Because electronic mail is used 1.5 times as often as Web browsing, the combined interstate holding time must be weighted accordingly. The weighted total ratio of interstate holding time to total holding time for both electronic mail and Web browsing is 6.57 percent [(4.5*1.5 + 9.69*1)/2.5]. This ratio falls well below the threshold established by the Commission for asserting jurisdiction over mixed-use facilities.[12] Considering that the sample of Internet users providing data for this study uses Internet resources to reach interstate or international destinations more than would be expected from the general population, a broader sample of Internet users would likely produce an even lower result.

III. THE STUDY METHODOLOGY WAS PREMISED ON THE COMMISSION'S PART 36 RULES

As MCI WorldCom, Hyperion, and others have commented already, the Commission lacked support in the record for its conclusion that 10 percent of the total traffic over GTE's ADSL-capable lines is bound for interstate destinations. Instead, the Commission relied on a fairly casual estimate of interstate traffic based on the mere fact that the Internet is a global network. In the *GTE ADSL Order*, the Commission stated that "special access lines carrying more than *de minimis* amounts of interstate traffic to private line systems should be assigned to the interstate jurisdiction. Interstate traffic is deemed *de minimis* when it amounts to ten percent or less of the total traffic on a special

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[12]This result may appear counterintuitive when the global reach of the Internet is considered, but this result is based upon applicable Commission rules that compare interstate holding times to total holding times. In a typical Internet session, an end user generates a long holding time while connected to an ISP, but the periods in which interstate facilities beyond the ISP are actually engaged are sporadic and brief.

access line."[13] The Order does not explain how the Commission concluded that ADSL traffic satisfied this requirement. Application of the underlying rules, however, shows that Internet access traffic does not satisfy the requirement.

Section 36.154(a) of the Commission's rules is the basis for the "10 percent rule" cited by the Commission.[14] That section states as follows:

> Subcategory 1.2 - Interstate private lines and interstate WATS lines. This subcategory shall include all private lines and WATS lines that carry exclusively interstate traffic as well as private lines and WATS lines carrying both state and interstate traffic if the interstate traffic on the line involved constitutes more than ten percent of the total traffic on the line.[15]

How one determines the "total traffic" and "ten percent of the total traffic" is not clearly explained in this rule, but they can be determined by examining other sections of the rules. To begin with, the facilities in question here -- the local loops over which ADSL service is provided -- are considered "subscriber plant" within Part 36.[16] The basis for determining the interstate usage of the "subscriber plant" is determined by making the following calculation:

> the interstate use of the subscriber plant [is] measured by the ratio of interstate holding time minutes of use to total holding time minutes of use applicable to traffic originating and terminating in the study area[.][17]

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[13] *GTE ADSL Order* at ¶ 23, *citing* MTS and WATS Market Structure, Amendment of Part 36 of the Commission's Rules and Establishment of a Joint Board, 4 FCC Rcd 5660 (1989) ("*Mixed-Use Decision*").

[14] Although the Commission does not refer to Section 36.154(a) in the *GTE ADSL Order*, this rule was promulgated in the *Mixed-Use Decision* that was cited by the Commission.

[15] 47 C.F.R. § 36.145(a) (emphasis added).

[16] 47 C.F.R. § 36.2(b)(2).

[17] 47 C.F.R. § 36.154(e).

"Holding time" is defined in the glossary to Part 36 as

> the time in which an item of telephone plant is in actual use either by a customer or an operator. For example, on a completed telephone call, holding time includes conversation time as well as other time in use.[18]

Therefore, holding time represents something greater than simple message transmission time. It represents the total time it takes to set up a telephone call, hold it open during the conversation or transmission, and then tear down the call. Of course, the rules were written for circuit-switched communications, not packet-switched communications. They presume an open dedicated communications path. Therefore, when applied to GTE's ADSL service in order to determine "ten percent of the total traffic on the line," one must first determine the "total holding time minutes of use applicable to traffic originating and terminating in the study area." This measurement is the total minutes of use in which telecommunications facilities are engaged by the customer. This correlates to the length of an Internet session in minutes. In the dial-up context, this would mean the total time elapsed from placing the call to the ISP until that call is disconnected. In the ADSL context, this would mean the technological equivalent of going off-hook, enabling the customer to access the ADSL line by either (a) booting up the computer, or (b) opening an Internet browser or e-mail reader, until either (y) the computer is shut down, or (z) one logs out of the browser or e-mail

[18] 47 C.F.R., Part 36, Appendix-Glossary (emphasis added).

reader.[19] The study uses session time from log-in to log-out as the "total holding time minutes of use applicable to traffic originating and terminating in the study area."[20]

The calculation also requires an interstate usage element, the "interstate holding time minutes of use." This measurement captures the total minutes of use in which telecommunications facilities located in other states, and telecommunications facilities used to reach those telecommunications facilities (including the local loop), are engaged by the customer. In the ADSL context, this would mean the total transmission time of a message or request for information from the end user, through the ISP, to the requested server located out of state, and then the responding transmission time from the out of state server back through the ISP to the end user. The Hyperion Study uses the total

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[19]Even though it is a packet-like service over the local loop, ADSL service also uses an open, dedicated communications path (admittedly, a "virtual" one). In fact, because of the "always on" capability of ADSL, the open dedicated communications path could be viewed as continuing around the clock, reducing the percentage of interstate usage of that path to almost nothing. *See* Comments of Southwestern Bell Telephone Company et al. in Support of GTE's ADSL Tariff, Attachment A, at 2 ("The data path created with the [private virtual channel] is always available, seven days a week, 24 hours a day, giving the ADSL subscriber the highly desirable 'always on' feature.") The Hyperion Study uses a more conservative interpretation of holding time: the duration of the Internet session.

[20]Admittedly, the methodology derived from Part 36 was established for circuit-switched voice or data traffic. Although Hyperion anticipates an argument that this methodology is not applicable to packet-switched traffic, it is the methodology that the Commission implicitly relies upon in the *GTE ADSL Order*, and, in the absence of another methodology for packet-switched traffic, it is the only methodology available under Commission rules for special access lines. *See also Amendments of Part 69 of the Commission's Rules Relating to the Creation of Access Charge Subelements for Open Network Architecture Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket Nos. 89-79, 87-313, Report and Order & Order on Further Reconsideration & Supplemental Notice of Proposed Rulemaking, 6 FCC Rcd 4524 (1991) at ¶ 11 (stating, with respect to changes to Part 69 access charge rules, "Our special access rules require no modification, and we conclude that no additional rule changes are necessary to accommodate multiplexing and packet switching.")

amount of time that transmission facilities are used to transmit and receive interstate communications, measured by the TCP/IP PING utility.

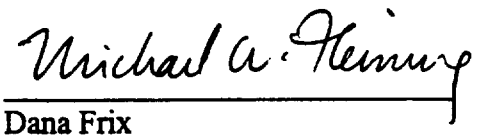
Accordingly, pursuant to the rules relied upon by the Commission, the Hyperion Study calculates the ratio of "interstate traffic on the line" to "total traffic on the line" by comparing the amount of time that interstate facilities are engaged by an end user to the total time that an end user engages telecommunications facilities during an Internet session. The Hyperion study has determined that the interstate traffic on the line constitutes 6.57 percent of the total traffic on the line, and therefore fails to satisfy the test established by Commission rules for the mixed-use special access line provided by GTE to fall in the interstate jurisdiction.

IV. CONCLUSION

The Hyperion Study disproves the Commission's unsupported conclusion in the *GTE ADSL Order* that the interstate traffic on a line using GTE's ADSL service constitutes more than ten percent of the total traffic on the line. The comments by ILECs further illustrate the weakness of the Commission's conclusion. As the Hyperion Study demonstrates, because the interstate traffic

on the line using GTE's ADSL service constitutes much less than ten percent of the total traffic on the line, the Commission cannot claim jurisdiction over the service using the "10 percent rule," and, therefore, must reconsider the *GTE ADSL Order*.

Respectfully submitted,



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Dated: January 19, 1999

EXHIBIT A

Investigation of ISP Interstate Traffic

For Selected Internet Applications

By

Dr. James G. Williams and Professor Kenneth Sochats

Department of Information Science and Telecommunications

University of Pittsburgh

January 19, 1999

Executive Summary

To investigate whether the amount of time Internet applications hold Interstate telecommunication resources is less than 10% of the total time an Internet user is connected to its local ISP, data was logged for 114 Internet e-mail and Web users. Data was logged for 231 e-mail sessions (with 1935 messages received) and 172 Web browser sessions. The data shows that less than 10 percent of the total session holding time is used for the Interstate transmission of data. Interstate transmission of e-mail represents 4.5% of the total traffic. Interstate transmission of data related to Web-browsing represents 9.69% of the total traffic. The unweighted average interstate holding time of e-mail and Web-browsing is 7.095%. The weighted average interstate holding time of e-mail and Web browsing is 6.57%. Analyzing the WWW data by separating the users into those using a direct line and those using dial-up access shows no significant differences. E-mail was not analyzed separately for direct and dial-up access since it is clearly less than 10% of the total mixed traffic. This result is due to the Client/Server model used by Internet applications, the mirroring of servers moving them closer to users and the caching of Web Pages by browsers, local area networks and ISPs. Other Internet applications such as electronic commerce, database searching and chat rooms have characteristics similar to e-mail and Web browsing, and therefore it is hypothesized that empirical data would also show less than 10% Interstate holding time. Applications such as FTP, Telnet, IP Telephony, IP Fax, and IP Video Conferencing may show different characteristics, but they are a very small fraction of Internet usage. As Internet backbone speeds continue to increase, mirrored sites continue to expand, and caching of Web pages by ISPs and local networks becomes even more widespread, the percent of time Internet applications will use the Interstate transmission facilities will continue to decrease.

1.0 Introduction and Background

1.1 The Problem

On October 30, 1998, the Federal Communications Commission (FCC) issued its order regarding whether a tariff for asymmetric digital subscriber line (ADSL) service filed by the GTE Telephone Operating Companies should be accepted for filing as an interstate access service tariff. High –speed digital subscriber line services employ enhancements to the telecommunications over the local loop to connect end users to high-speed data networks, typically those provided by Internet service providers. By rerouting data traffic to ISPs away from the end office switch to a digital subscriber line access multiplexer (DSLAM) and employing high-speed modems on both ends of the connection, DSL services significantly increase transmission speeds between end users and ISPs. In the October 30, 1998 Order, the FCC decided that Internet access services such as the one offered by GTE constituted interstate communications and were within the jurisdiction of the FCC. The FCC, therefore, accepted the GTE ADSL tariff for filing. The FCC also asserted jurisdiction over ADSL services on the grounds that they were special access

lines that carried both interstate and intrastate services, but the amount of interstate traffic was more than a de minimis amount. Under FCC rules, telecommunications lines that carry less than 10 percent interstate traffic are characterized as intrastate lines on the grounds that the interstate usage is de minimis.

There does not appear to be any data to support or refute the 10 percent mixed traffic rule for ISP traffic as of the time of this report. The purpose of this report is to present data relative to this rule for ISP traffic.

1.2 Factual Background

There are presently two ways to obtain access to an ISP: dial-up service and direct access. For dial-up service, ISPs typically purchase "business lines" (PRIs) from local phone companies. Many ISPs are buying PRI lines from CLECs since ILECs have not been able to respond to the demand for PRI lines. Direct access involves use of a dedicated line between the end user and the ISP. Because the cost of dedicated access is significantly higher than the cost of dial-up access, dedicated access is typically used only by high-volume end users, such as businesses, or end users with a particular need for high-speed connections to ISPs. Although ADSL is provided over the local loop, it provides a virtual dedicated connection between an end user and an ISP using a local exchange carrier's ATM or frame relay network.

Federal regulations address the jurisdictional classification of dedicated access lines, also known as special access lines. Section 36.154, subcategory 1.2 , of the FCC's rules states that the category of "Interstate Private Lines and Interstate WATS lines" "shall include all private lines and WATS lines that carry exclusively interstate traffic as well as private lines and WATS lines carrying both state and interstate traffic if interstate traffic on the line involved constitutes more than ten percent of total traffic on the line."

If it can be shown that interstate traffic is less than or equal to 10 percent of total traffic between an end user and an ISP, then the line carrying that traffic, known as "subscriber plant," would be subject to state, and not federal, jurisdiction. Under FCC rules, the interstate use of the subscriber plant is measured by the ratio of interstate holding time minutes of use to total holding time minutes of use applicable to traffic originating and terminating in the study area.

2.0 The Study Context and Methodology

2.1 The Context of the Study

In order to present evidence that supports or refutes the 10 percent mixed traffic rule for ISP access services, it is necessary to define those services that generate ISP traffic on the Internet and then collect data relative to these services. The categories of service

provided by ISPs that generate the majority of traffic are e-mail. Web browsing, and internet based applications such as FTP, Telnet, database searching and E-Commerce (EDI). Increased future uses of the Internet that will generate significant traffic include IP Telephony and IP video conferencing. There are several technologies and technology trends related to the Internet and the World Wide Web (WWW), in particular, which have or will have a profound impact on how much Internet traffic remains local and how much will require long distance resources. Specifically, the technologies are the packet switched Client/Server architecture, large scale web caching, and mirrored server sites. Additionally, as the dial-up subscriber line technology reaches its theoretical transmission speed limit, while the Internet transport and ISP-to-Internet transport speeds continue to grow at a rapid pace, the ratio of interstate transmission time to local transmission time will continue to decrease.

Because of the client/server model, the characteristics of Internet sessions, and the ISP network topology, ISP traffic falls into the category of mixed local and interstate traffic. It is hypothesized that ten percent or less of the holding time for ISP traffic utilizes long distance, interstate, Internet resources or conversely, 90% or more of the holding time by ISP users is for local communication traffic.

2.2 Technologies Impacting Interstate Telecommunication Resource Usage

2.2.1 Internet's Client/Server Architecture vs. Voice Telephone Circuit Switching

The Internet works using a client server model of information delivery as opposed to the circuit switched technology of telephone voice communications. In the client/server model, a client (source) only connects to a server (destination) when the client has a request for service which may include receiving and sending e-mail, sending and receiving Web pages, sending and receiving database queries and results, transferring a file, and other Internet based services. Clients are typically personal computers running workstation operating systems, while servers are usually more powerful machines running Unix, NT or Netware network operating systems. Client and host computers are connected to the Internet via an Internet Service Provider (ISP). The ISP has a direct connection to the Internet via its router and typically a leased line to the nearest Internet Point of Presence (POP), which is an Internet Router. A client computer establishes a connection to its ISP either directly via a leased line or via a dial-up line. When the client makes a request from a server on the Internet, a connection is made to the server and the request is routed from the client to the ISP over the Internet to the destination server using the TCP/IP communication protocol. The server executes the request and transmits the results back to the client over the Internet and the connection is then terminated awaiting the next request from a client to establish another connection to the same or a different server. A session for a client (time connected to the ISP) may involve tens or hundreds of connection requests and terminations depending on the application being utilized. A connection in a client/server model between the client (source) and a server

(destination) only lasts for the duration of a transaction that may range from milliseconds to seconds depending on the request type. Therefore, the holding time for Internet communication facilities in the client/server model is the sum of the transaction holding times during a session. The network resources between the ISP and the destination server on the Internet are only in use for the duration of the transaction, not for the entire session involving the client connection to the ISP. This amount of time is different depending whether the TCP or UDP communications protocol is used as discussed below. There are applications such as reading e-mail where the client computer may never utilize any Internet resources during a session, although Internet resources were used prior to the session to receive e-mail messages from some sources. Different applications will have different holding times for Internet communication resources. ISPs carry local traffic from their local direct and dial-up customers as well as other local ISPs, and long distance traffic to and from servers connected to the Internet throughout the world.

In the telephone circuit switched voice network, the user takes the source (calling) handset off-hook and dials the number (address) of a destination phone handset. The telephone network central office switch establishes a permanent route (connection) between the source and the destination that will remain in effect until the entire session has been completed. The local and long-distance network resources utilized by this connection are not available until the two parties hang-up (go on-hook). Therefore, the session time is equal to the holding time.

The major difference between these two modes of communications is that the client/server model only uses Internet communication resources for the duration of an information request and receive transaction regardless of how long the local session lasts, while the circuit switched model of the voice telephone network consumes network resources for the entire duration of a session.

2.2.1.1 TCP and UDP Protocol Differences

It should be noted that Internet applications utilize the TCP/IP communications protocol that actually has two different protocols that applications may use. These are the Transmission Control Protocol (TCP) and the Universal Datagram Protocol (UDP). If UDP is utilized by an application, there is no circuit setup between the client and the server and no verification that a message actually arrived or arrived correctly. The client simply sends the packet(s) of data to the host and hopes that it will arrive correctly. Many mail systems use the UDP protocol. TCP, on the other hand, establishes a circuit between the client and the server when a request is made by the client, and typically holds the circuit until the server has satisfied the request or a timeout occurs. Typically the client terminates the connection, but the server can also terminate a TCP connection.